

Science Panel

April 19, 2012

You Have 5 Issues

- Model Selection
- Eveness correction
- Reference Pool Restriction
- Threshold selection
 - uncertainty
- Antidegradation

Observed Over Expected Models

- O/E models can be very effective scoring tools
 - Science Team did a great job at building an effective model
- Science Team needs to prepare a clear explanation of this model for lay audiences
 - Have transparent and reproducible technical support
- Panel recommends exploring correction to address issue of potential mathematical artifacts that could bias model
- We recommend that a modeled multi-metric index is worth exploring

Evenness Correction

- To correct or not correct is an equivocal philosophical approach
- There are some advantages for correction
 - Marginally reduces model variability
 - Focuses the model on concept of “species loss”
- There are some disadvantages
 - May remove some estimate of impact
 - Makes model explanation more difficult
- The Panel’s general recommendation is that evenness correction is not required

Reference Pool Restriction

- The Science Team has done a good job setting original reference pool screening criteria
- Model performance is not dramatically different with the restricted reference data set
 - Original reference set likely improves capturing natural gradients
- Recommended specific additional analyses for quantifying potential bias
 - Check O/E scores of removed sites to ensure centered on 1.0
 - Evaluate relationships of O/E of reference sites with anthropogenic stressors

Threshold Selection and Uncertainty

- No scientific basis for selecting a specific threshold
 - Degree of acceptable biological change is a value judgment
- Either biological or statistical approaches to threshold selection could be used
 - A hybrid approach might be useful
- Interval-equivalence tests can quantify statistical uncertainty
 - Grey area could incorporate both model and sampling variability

Anti-Degradation

- Science Team showed us two approaches
 - Mean condition approach
 - Condition class approach
- Actual site condition can vary considerably within a class
- Challenges for future technical work is creating a definition of initial condition and controlling for potential confounding natural temporal variability and human activities
 - Be aware of small, incremental degradation over time